Dual 1×30 Multiplexer Card
60 differential channels, automatic CJC w/3720-ST accessory

The Model 3720 offers two independent banks of 1×30 two-pole multiplexers. It is ideal for general purpose switching, including temperature measurements. The two banks can automatically be connected to the Series 3700A mainframe backplane and optional DMM through the analog backplane connection relays. This connection allows the mainframe to reconfigure the card to a single 1×60 two-pole multiplexer or to enable card-to-card expansion for even larger configurations.

Other features of the Model 3720 include its ability to be reconfigured to coordinated four-pole operation for additional measurement flexibility. Furthermore, the Model 3720 supports thermocouple-type temperature measurements when used with the Model 3720-ST (screw terminal) accessory providing automatic cold junction compensation (CJC).

The Model 3720 uses two 78-pin male D-sub connectors for signal connections. For screw terminal or automatic CJC, use the detachable Model 3720-ST accessory.

### Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3720-MTC-15</td>
<td>78 Pin D-sub Female to Male Cable, 1.5m (5 ft.)</td>
</tr>
<tr>
<td>3720-MTC-3</td>
<td>78 Pin D-sub Female to Male Cable, 3m (10 ft.)</td>
</tr>
<tr>
<td>3720-ST</td>
<td>Screw Terminal Block (required for auto CJC thermocouple measurements)</td>
</tr>
<tr>
<td>5791-CIF</td>
<td>Contact Insertion and Extraction Tool</td>
</tr>
<tr>
<td>5791-KIT78-R</td>
<td>78 Pin Female D-sub Connector Kit (contains 2 female D-sub connectors and 156 solder-cup contacts)</td>
</tr>
<tr>
<td>7401</td>
<td>Type K Thermocouple Wire (100 ft.)</td>
</tr>
</tbody>
</table>

### Accessories Available

- 3720-3Y-EW-STD 1-year factory warranty extended to 3 years from date of shipment
- 3720-5Y-EW-STD 1-year factory warranty extended to 5 years from date of shipment
- C/3720-3Y-STD 3 (Z540-1 compliant) calibrations within 3 years of purchase*

*Not available in all countries
**Dual 1×30 Multiplexer Card**
60 differential channels, automatic CJC w/3720-ST accessory

**MULTIPLEXER CONFIGURATION:** Two independent 1×30 2-pole multiplexers. Banks can be isolated from the backplane by relays. Card can be configured for 2 and 4 wire.

**CONTACT CONFIGURATION:** 2 pole form A.

**CONNECTOR TYPE:** Two 78 pin male D-shells.

**MODEL 3720-ST SCREW TERMINAL OPTION:** #22 AWG typical wire size with 0.062 inch O.D. 124 conductors maximum. #16 AWG maximum wire size with 0.092 inch O.D. 36 conductors per card maximum.

**MAXIMUM SIGNAL LEVEL:** Channels 1–60: 300V DC or RMS, 1A switched (2A carry), 60W, 125VA.

**COMMON MODE VOLTAGE:** 300V DC or RMS between any terminal and chassis.

**VOLT-Hertz LIMIT:** 8×10^10.

**CONTACT LIFE:** >10^9 operations at maximum signal level. >10^9 operations no load.

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### Contact Potential (differential)

- Channels 1–60
- Channels 32–59

### Offset Current

- Channels 1–60: 200 µA
- Channels 32–59: 100 µA

### Isolation

- Differential: 10^9 Ω, 250 pF
- Bank-Bank: 10^9 Ω, 75 pF
- Channel-channel: 10^9 Ω, 75 pF

### Common Mode

- Channels 1–60: 10^9 Ω, 450 pF
- Channels 32–59: 10^9 Ω, 400 pF

### Crosstalk Channel-channel

- 300kHz: <−60 dB
- 1MHz: <−50 dB
- 20MHz: <−25 dB

### Bandwidth

- 50 MHz
- 10 MHz

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**TYPICAL SCANNING SPEEDS:**

- **Switch Only**: Sequential scanning, single channel, immediate trigger advance: >120 ch/s.
- **With Measurements Into Memory**: DCV (10V range) or 2W Ohms (1kΩ range): >110 ch/s.
  - Thermocouple: >110 ch/s.
  - 3- or 4-Wire RTD: >100 ch/s.
  - 4-Wire Ohms (1kΩ range): >100 ch/s.
  - ACV (10V range): >110 ch/s.

### GENERAL

- **ACTUATION TIME:** ≤4ms.

- **TEMPERATURE ACCURACY using Automatic CJC with 3720-ST accessory:** 1°C for J, K, T and E types (see mainframe specification for details).

- **RELAY TYPE:** Latching electromechanical.

- **RELAY DRIVE SCHEME:** Matrix.

- **INTERLOCK:** Backplane relays disabled when interlock connection is removed.

- **OPERATING ENVIRONMENT:** Specified for 0°C to 50°C. Specified to 70% R.H. at 35°C.

- **STORAGE ENVIRONMENT:** −25°C to 65°C.

- **WEIGHT:** 2.5 lbs.

- **SAFETY:** Conforms to European Union Directive 73/23/EEC, EN61010-1.

- **EMC:** Conforms to European Union Directive 2004/108/EC, EN61326-1.

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**NOTES**

1. Open detector enabled during thermocouple measurements. Minimum signal level 10mV, 10Ω.
2. Model 3706A mainframe with all DMM backplane relays disconnected. Maximum two card backplane relays closed.
3. Connections made using 3720-ST accessory.
4. Scanning script local to 3706A mainframe, within same bank, and break before make switching.
5. Connections made using 3720-ST accessory.

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**Model 3720 specifications**